

AMENDMENTS TO THE SPECIFICATION

Applicants respectfully present the following replacement title for the present application.

--SURFACE ACOUSTIC WAVE DEVICE WITH LITHIUM TANTALATE ON A SAPPHIRE SUBSTRATE AND FILTER USING THE SAME--

Applicants respectfully present the following amendments to the specification.

Please amend the paragraph beginning on line 12 of page 1 as follows:

The SAW device is widely applied to the band-pass filter and duplexer of the cellular phone. In recent years, the filter using the SAW device is required to have higher performance as the cellular phone has higher performance. One of the requirements for the SAW device is to improve the temperature stability because temperature change moves the pass-band frequency range of the filter. As is known, lithium ~~tantalite~~ tantalate (LiTaO_3 , hereinafter simply referred to as LT) is a piezoelectric material having a large electromechanical coupling coefficient, which is advantageous for realizing broad filter characteristics. However, LT has a disadvantage in that it is inferior to quartz crystal in terms of temperature stability. The piezoelectric material has a general tendency of incompatible characteristics such that materials having large electromechanical coupling coefficients such as LT and lithium niobate (LiNbO_3 , hereinafter simply referred to as LN) have comparatively poor temperature stability, while materials having good temperature stability such as quartz crystal have comparatively small electromechanical coupling coefficients. Thus, a piezoelectric

material having both a large electromechanical coupling coefficient and a good temperature stability has been sought for years.

Please amend the paragraph beginning on line 8 of page 4 as follows:

The above objects of the present invention are achieved by a surface acoustic wave device comprising: a piezoelectric substrate having a first surface on which comb-like electrodes are formed, and a second surface; and a support substrate joined to the second surface of the piezoelectric substrate, the piezoelectric substrate being made of lithium ~~tantalite~~, tantalate, and the support substrate being made of sapphire,

the following expressions being satisfied:

$$T/t < 1/3 \quad (1)$$

$$T/\lambda > 10 \quad (2)$$

where T is a thickness of the piezoelectric substrate, t is a thickness of the support substrate, and λ is a wavelength of a surface acoustic filter propagated along the first surface of the piezoelectric substrate.

Please amend the paragraph bridging pages 4 and 5 as follows:

The above objects of the present invention is achieved by a filter comprising: a piezoelectric substrate having a first surface on which comb-like electrodes are arranged so as to form a transmit filter and a receive filter, and a second surface; and a support substrate joined to the second surface of the piezoelectric substrate, the piezoelectric substrate being made of lithium ~~tantalite~~, tantalate, and the support substrate being made of sapphire,

the following expressions being satisfied:

$$T/t < 1/3 \quad (1)$$

$$T/\lambda > 10 \quad (2)$$

where T is a thickness of the piezoelectric substrate, t is a thickness of the support substrate, and λ is a wavelength of a surface acoustic filter propagated along the first surface of the piezoelectric substrate.

Please amend the paragraph beginning on line 2 of page 7 as follows:

The piezoelectric substrate 10 in the model was made of lithium ~~tantalite~~ tantalate (LT), which has a thermal expansion coefficient of 16.1 ppm/°C and a Young's modulus (E) of 233 GPa. The support substrate 20 in the model was made of sapphire. In addition, materials other than sapphire were used which have a linear expansion coefficient of 3.35 ppm/°C and a Young's modulus (e) falling within the range of 25 GPa to 400 GPa. That is, two cases were simulated. In the first case, the ratio of the Young's modulus E of the piezoelectric substrate 10 to the Young's modulus e of the support substrate 20 (E/e) was changed from 0.58 to 9.82. The second case used the combination of lithium ~~tantalite~~ tantalate and sapphire for the joint substrate 100.